

447 **WHAT IS CLAIMED IS:**

448 1. A method for determining EGR flow in an internal combustion engine, such flow being
449 from an exhaust manifold of the engine to an intake manifold of the engine through an EGR,
450 valve, the method comprises:

451 providing an indication of the flow of exhaust gas into the intake manifold through
452 such inlet from information provided by a mass air flow sensor disposed upstream of an
453 exhaust gas inlet to the intake manifold and information provided by an manifold absolute
454 pressure sensor disposed downstream of such exhaust gas inlet; and

455 comparing the estimated exhaust gas flow into the intake manifold with a commanded
456 exhaust gas flow to the EGR valve.

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458 2. A method for determining EGR flow in an internal combustion engine, such flow being
459 from an exhaust manifold of the engine to an intake manifold of the engine through an EGR
460 valve, the method comprises:

461 determining actual manifold absolute pressure readings from an manifold absolute
462 pressure sensor disposed downstream of an inlet for the EGR flow into the intake manifold;

463 obtaining readings of airflow into the intake manifold upstream of the EGR inlet;

464 computing an inferred manifold absolute pressures from the airflow readings;

465 obtaining samples of a desired EGR flow signal fed to a valve for controlling the
466 EGR flow into the inlet;

467 determining a coefficient B2, such coefficient being a function of: (A) the differences
468 between the determined actual manifold absolute pressure readings and the calculated

469 manifold absolute pressures; and (B) the obtained desired EGR flow samples;

470 comparing the determined coefficient B2 with a predetermined value for B2.

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472 3. A system for determining EGR flow in an internal combustion engine, such flow being
473 from an exhaust manifold of the engine to an intake manifold of the engine through an EGR
474 valve, the system comprising:

475 an manifold absolute pressure sensor disposed downstream of such exhaust gas inlet;

an a mass air flow sensor disposed upstream of an exhaust gas inlet to the intake manifold for providing an indication of the flow of exhaust gas into the intake manifold through such inlet from information provided by the mass air flow sensor and information provided by the manifold absolute pressure sensor; and

a processor for comparing the estimated exhaust gas flow into the intake manifold with a commanded exhaust gas flow to the EGR valve.

4 . An article of manufacture, comprising:

a computer storage medium having a computer program encoded therein for determining EGR flow in an internal combustion engine, such flow being from an exhaust manifold of the engine to an intake manifold of the engine through an EGR valve, , said computer storage medium comprising:

code for providing an indication of the flow of exhaust gas into the intake manifold through such inlet from information provided by a mass air flow sensor disposed upstream of an exhaust gas inlet to the intake manifold and information provided by an manifold absolute pressure sensor disposed downstream of such exhaust gas inlet; and

code for comparing the estimated exhaust gas flow into the intake manifold with a commanded exhaust gas flow to the EGR valve.

5. The article of manufacture recited in claim 4 wherein the computer storage medium comprising a semiconductor chip.